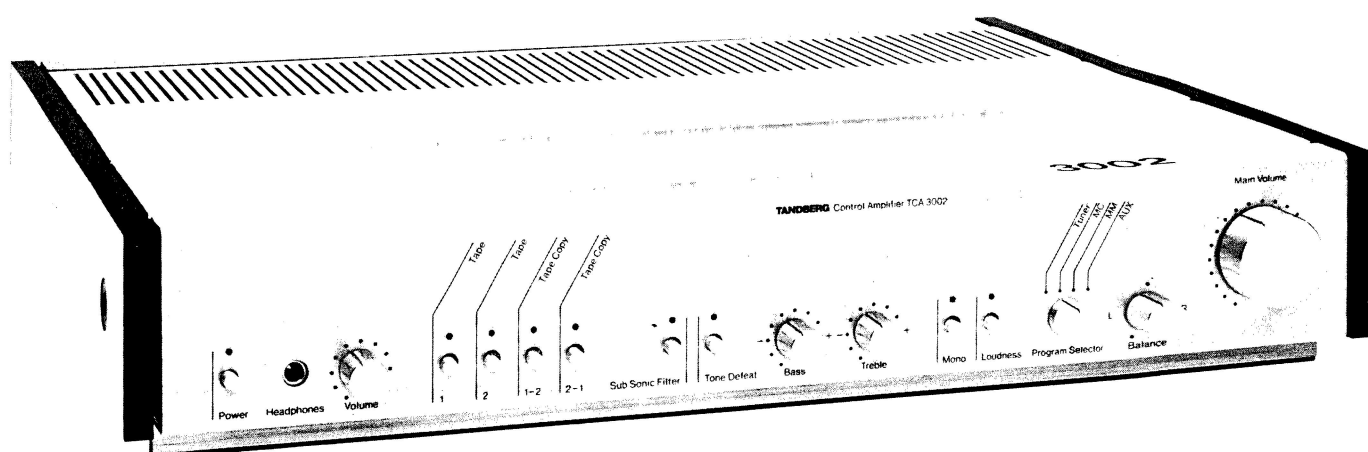


TANDBERG®

Control Amplifier 3002

Circuit Diagrams and Alignment Instructions



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Dismantling

- Top cover, rear (1).
- Top cover, front (2).
- Rear panel (3).
- Front panel (4). Remove rotary knobs.
- Bottom cover (5).

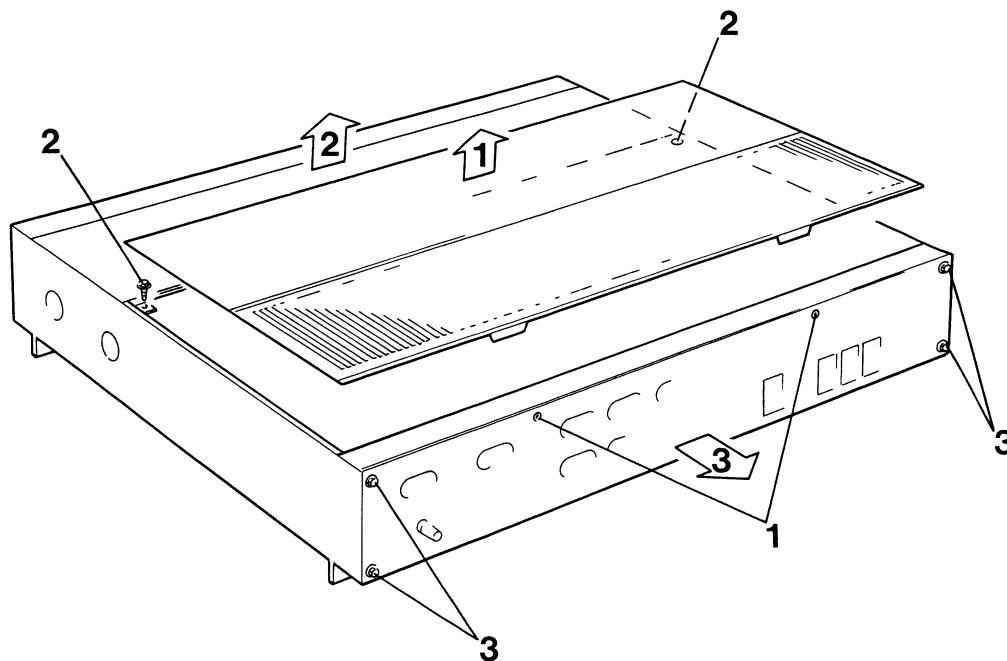


Figure 1 Dismantling the rear and top covers

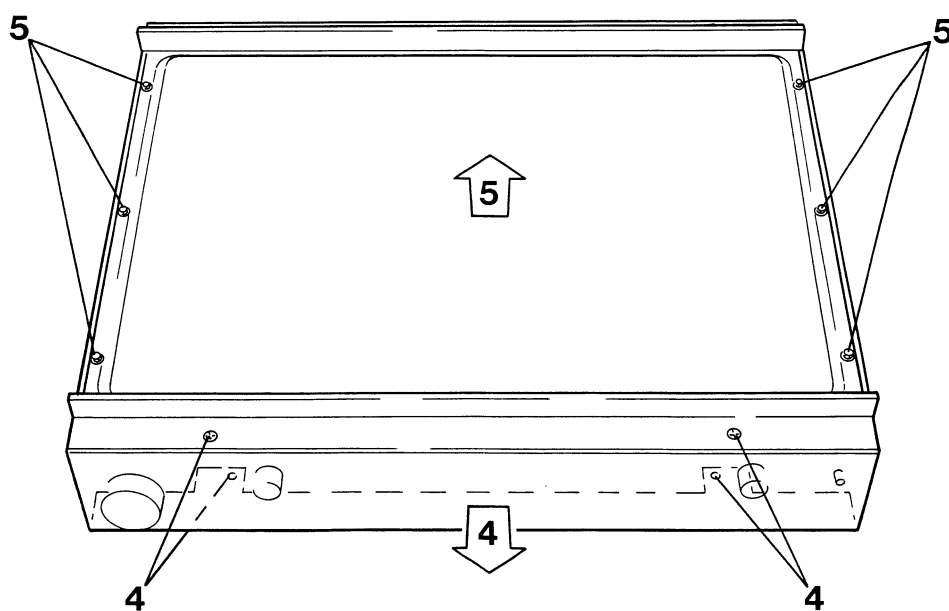


Figure 2 Dismantling the front and bottom covers

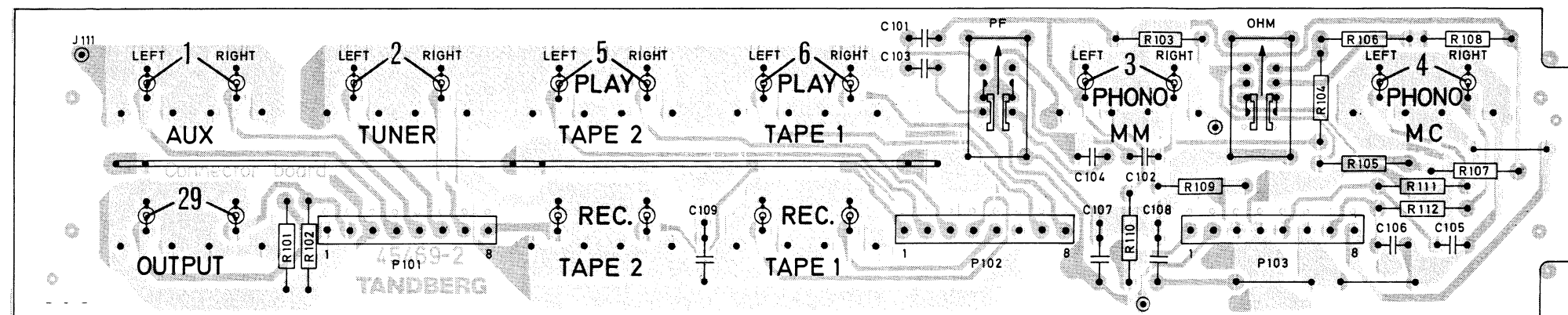


Figure 3 Connector board

ALL BOARDS ARE SEEN FROM THE SOLDER SIDE.
TEST POINTS FOR AC-VOLTAGES IN COLOUR.

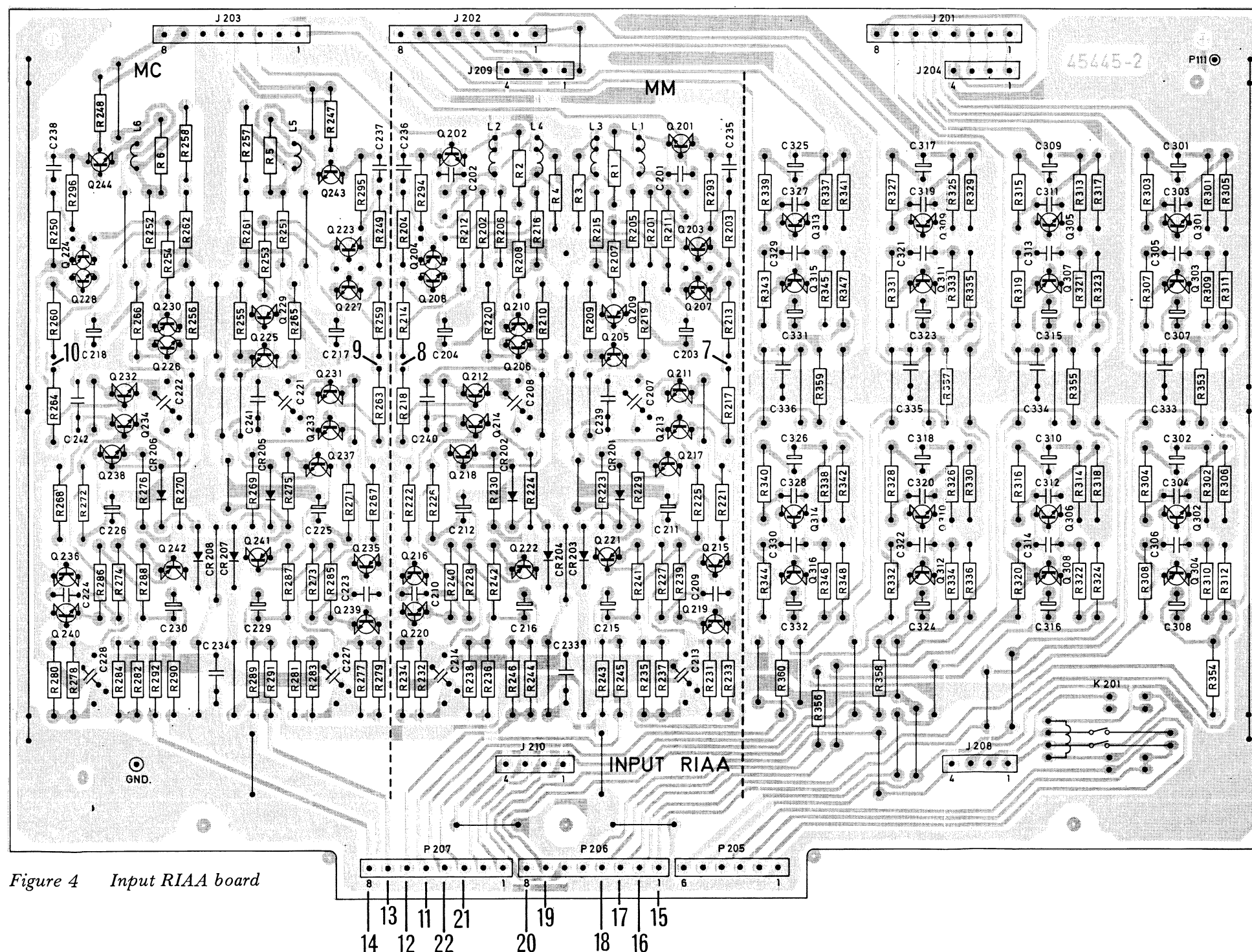


Figure 4 Input RIAA board

AC voltages

The table below gives AC voltages for the test points in Figures 3 and 4.

Test conditions

Signal: 1000 Hz.
Volume controls: Max. position.
Tone controls: Mid. position.
Balance control: Mid. position.

| Test points with input signal voltages | | | |
|--|---------|-------------------------|-----------|
| Test points with signal voltages | 7 - 8 | 1 - 2 - 5 - 6 145 mV | 3 2 mV |
| | 9 - 10 | | 16 mV |
| | 11 - 12 | | 145 mV |
| | 13 - 14 | | 16 mV |
| | 15 - 16 | 145 mV (1)* | 145 mV |
| | 17 - 18 | 145 mV (2)* | |
| | 19 - 20 | 145 mV (5)* | |
| | 21 - 22 | 145 mV (6)* | |
| | 29 | 1.0 V | 1.0 V |

* The numbers in parantheses indicate the corresponding input test points.

Test points with AC voltages are also given in the diagrams on pages 4 and 5.

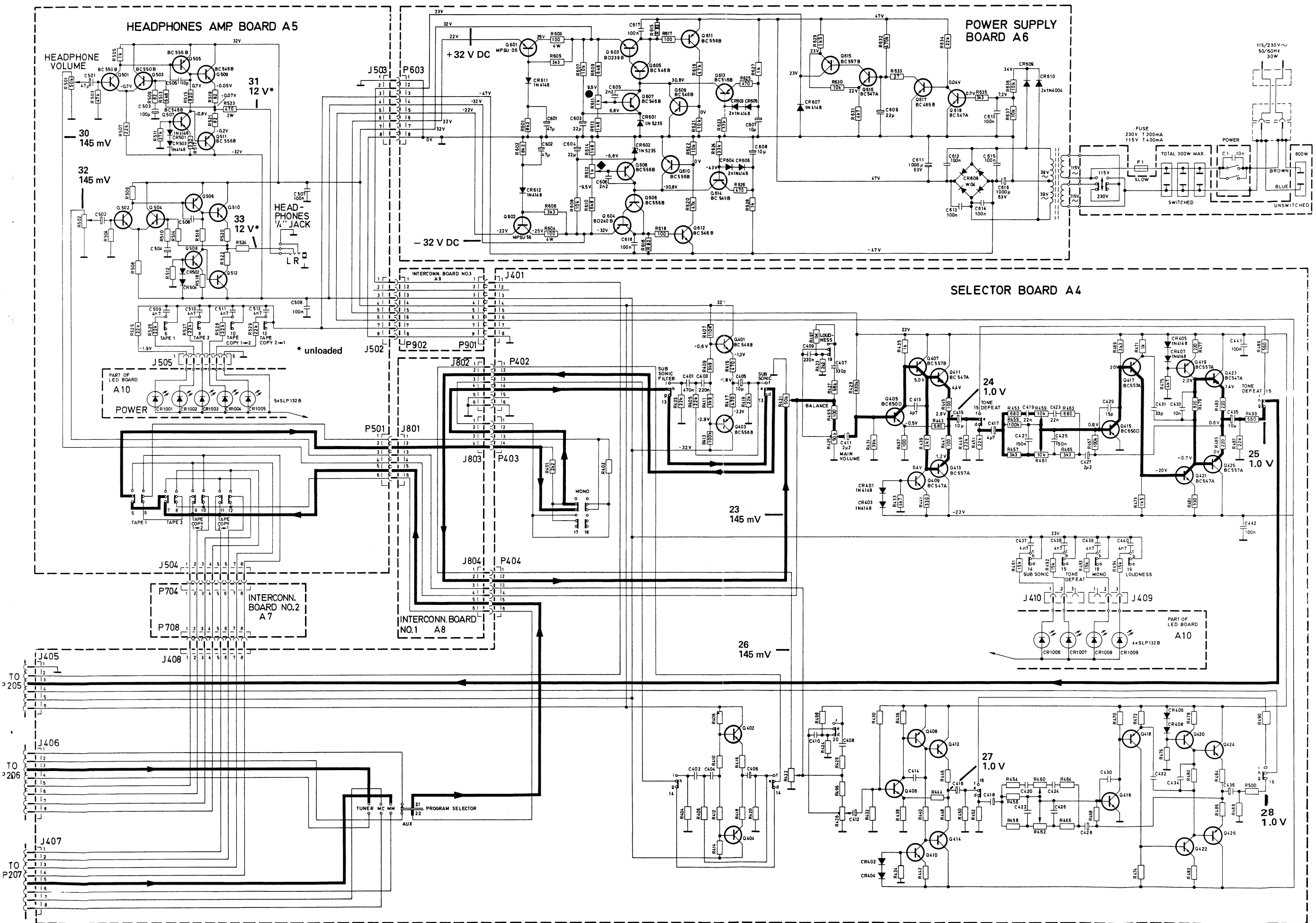


Figure 6 Circuit diagram, headphones amplifier, tone controls and power supply

TEST POINTS WITH AC - VOLTAGES IN COLOUR

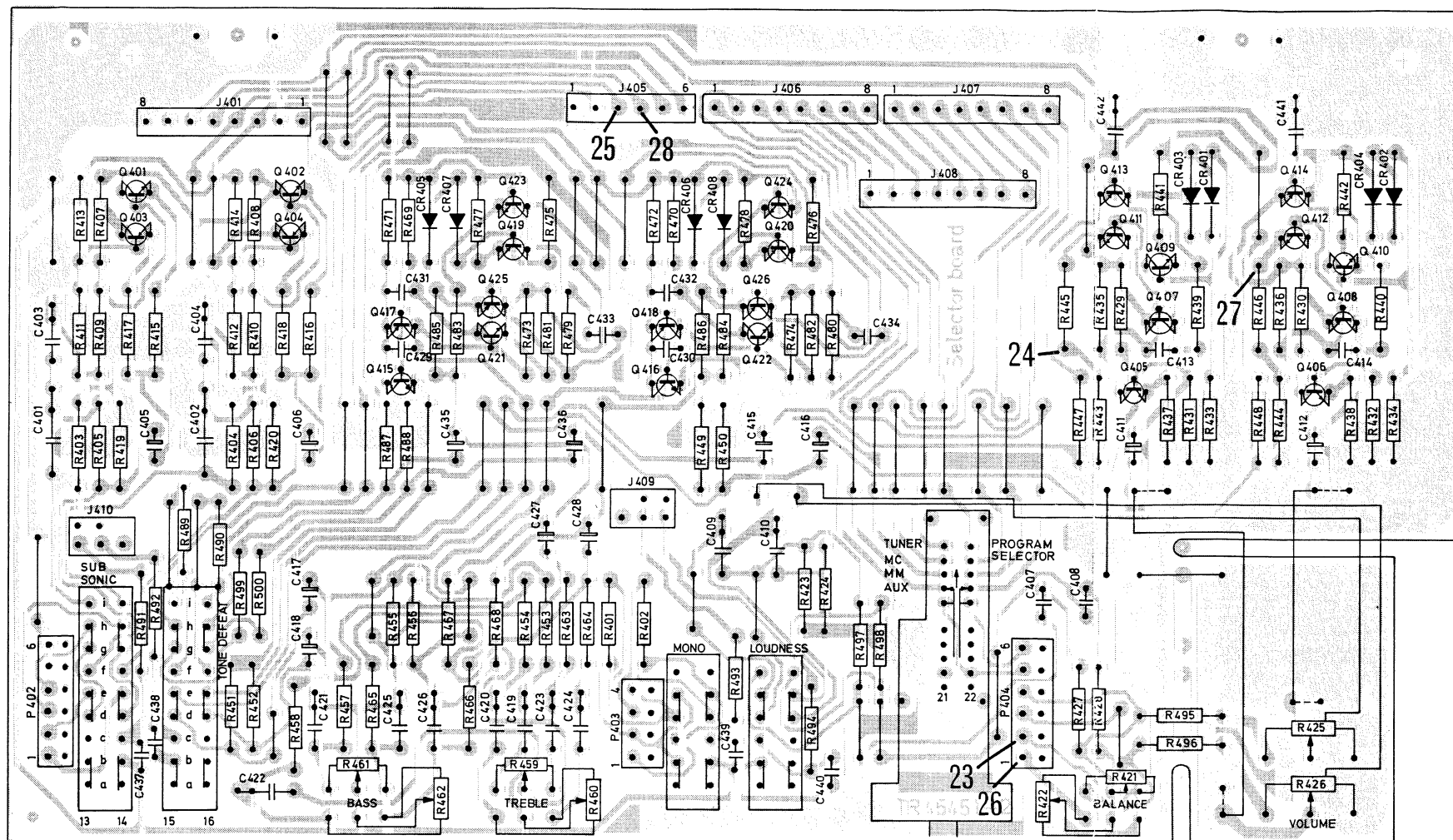


Figure 7 Selector board

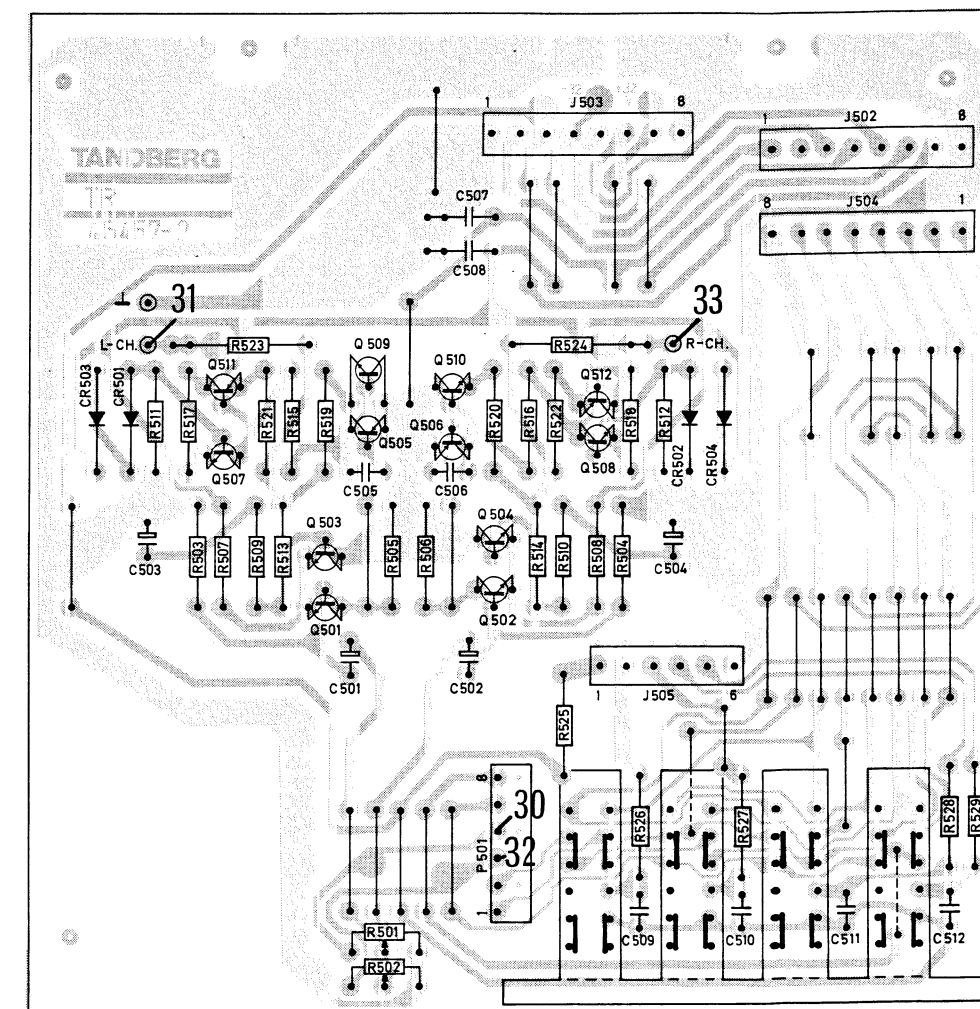


Figure 8 Headphones amplifier board

AC voltages

The table below gives AC voltages for test points in Figures 7 and 8.

| | | Test points with input signal voltages | | |
|----------------------------------|---------|---|-----------|--------------|
| | | 1 – 2 – 5 – 6 145 mV | 3 2 mV | 4 0.16 mV |
| Test points with signal voltages | 23 | <div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> <div style="position: absolute; top: 0; left: 0; right: 0; bottom: 0; border: 1px solid black; border-radius: 50%;"></div> </div> | | |
| | 24 – 25 | | | |
| | 26 | | | |
| | 27 – 28 | | | |
| | 30 | | | |
| | 31 | | | |
| | 32 | | | |
| | 33 | 12 V unloaded | | |

Test conditions

Signal: 1000 Hz.
Volume controls: Max. position.
Tone controls: Mid. position.
Balance control: Mid. position.

Test points with AC voltages are also given in the diagrams on pages 4 and 5.

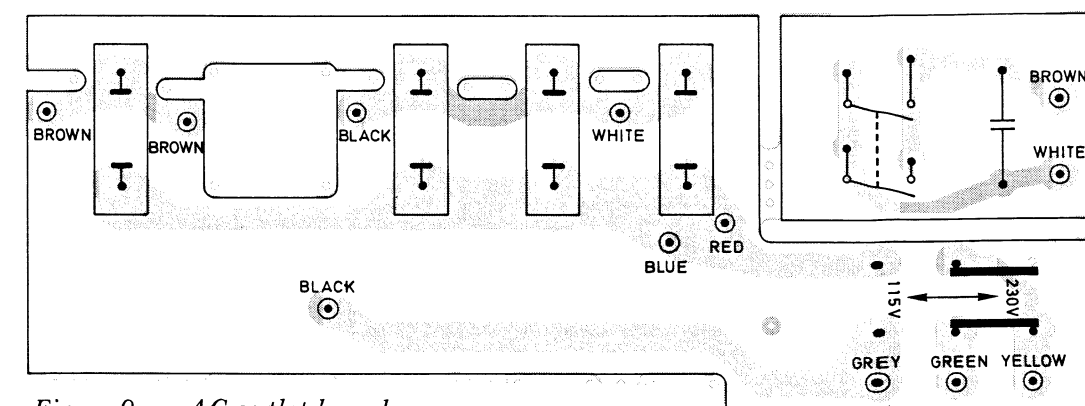


Figure 9 AC outlet board

ALL BOARDS ARE SEEN FROM THE SOLDER SIDE.
TEST POINTS FOR AC-VOLTAGES IN COLOUR.

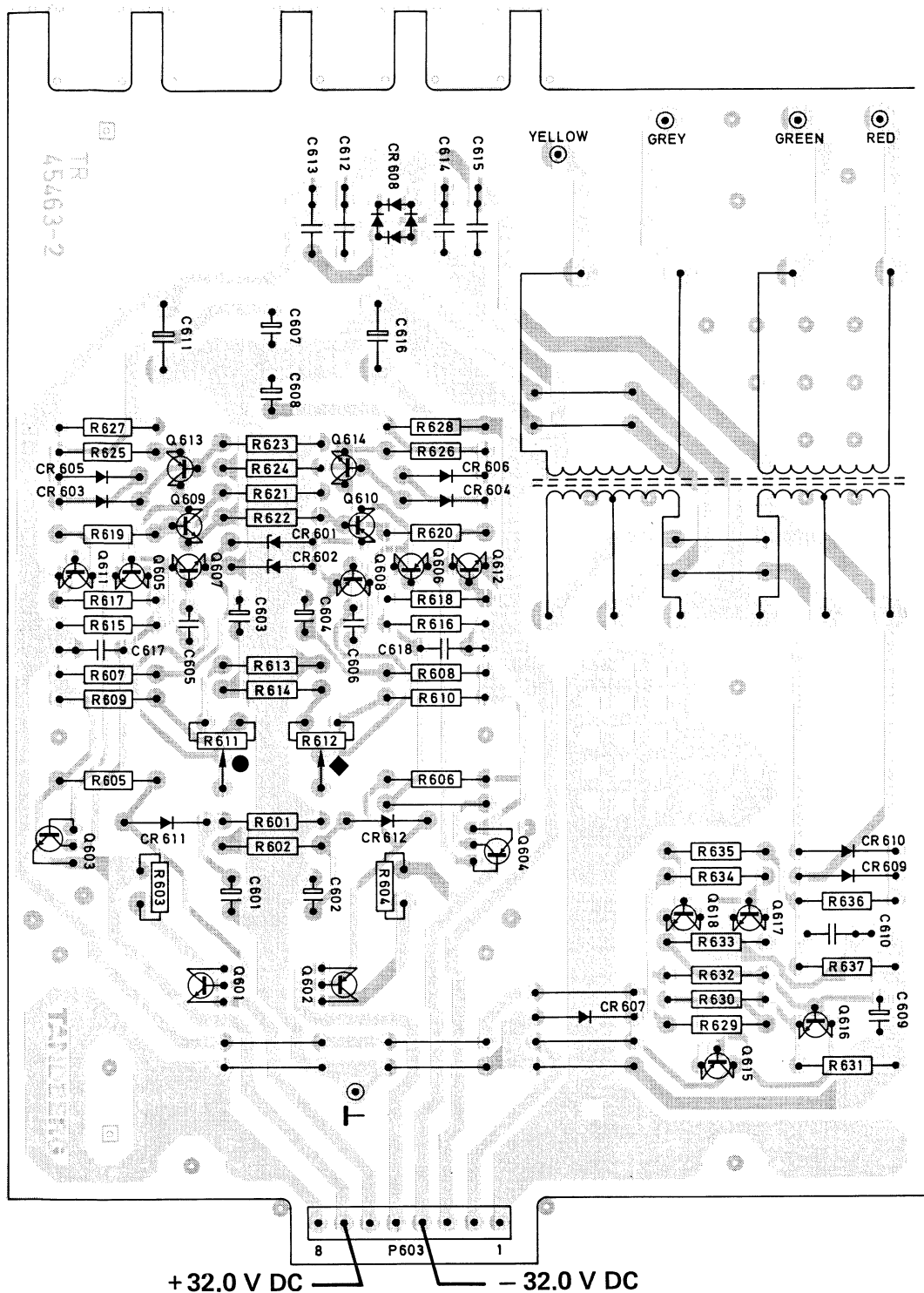


Figure 10 Power supply board

Adjusting the supply power (± 32 V)

- Adjust R611 for + 32.0 V at pin 7, J503 (Figure 10).
- ◆ Adjust R612 for - 32.0 V at pin 4, J503 (Figure 10).

Tandberg Control Amplifier TCA 3002

Technical data

Power requirements: 115/230 V \pm 10%, 50/60 Hz
Power consumption: 30 W max.
AC-outlets: Unswitched 1
Switched 3

Dimensions: Width 17 1/8" (43.5 cm)
Depth 13 3/4" (35.0 cm)
Height 3 1/4" (8.3 cm)
Weight 12.5 lbs (5,7 kg)

Technical Data according to IHF-A-202, 1978

Frequency response

Phono MM: 20 – 20,000 Hz \pm 0.2 dB
Phono MC: 20 – 20,000 Hz \pm 0.2 dB
Tape 1, Tape 2: 20 – 20,000 Hz + 0/– 0.1 dB
Tuner, AUX: 20 – 20,000 Hz + 0/– 0.1 dB

Maximum Voltage Output

Preamp output: 5 V at THD = 0.004%
Preamp output: 10 V at clipping level
Tape 1, Tape 2: 7.5 V
Headphone output: 20 V unloaded

Total Harmonic Distortion (20 Hz – 20,000 Hz)

Phono MM: $<$ 0.004%
Phono MC: $<$ 0.004%
Tape 1, Tape 2: $<$ 0.004%
Tuner, AUX: $<$ 0.004%

Input Sensitivity – Ref. 0.5 V output voltage

Phono MM: 1 mV
Phono MC: 80 μ V
Tape 1, Tape 2: 70 mV
Tuner, AUX: 70 mV

A-weighted Signal-to-Noise Ratio

Phono MM: 80 dB
Phono MC: 74 dB
Tape 1, Tape 2: 95 dB
Tuner, AUX: 95 dB

Maximum Input Voltage (1 kHz)

Phono MM: 290 mV
Phono MC: 22 mV
Tape 1, Tape 2: 11 V
Tuner, AUX: 11 V

Input Impedance

Phono MM: 33 / 47 / 100 kohms
Phono MC: 1 kohm
Tape 1, Tape 2: 47 kohms
Tuner, AUX: 47 kohms

Secondary Disclosures

Output Impedance

Preamp: 560 ohms + 10 μ F in series
Headphones: 470 ohms
Headphones (min. load): 4 ohms

Tone-control Response

Bass: \pm 10 dB at 50 Hz
Treble: \pm 10 dB at 10,000 Hz
Loudness: Max. 7 dB at 50 Hz
Max. 3 dB at 10,000 Hz

Filter

Sub Sonic: – 12 dB/oct., – 3 dB at 15 Hz

Crosstalk (100 Hz – 10 kHz)

Phono MM: To any of the other sources $>$ 70 dB
Phono MC: To any of the other sources $>$ 70 dB
Tape 1, Tape 2: To any of the other sources $>$ 70 dB
Tuner, AUX: To any of the other sources $>$ 70 dB

Separation (100 Hz – 10 kHz)

Phono MM: $>$ 53 dB
Phono MC: $>$ 53 dB
Tape 1, Tape 2: $>$ 58 dB
Tuner, AUX: $>$ 58 dB

Transient intermodulation

All inputs: Immeasurable

Other Technical Data

Frequency Response

Tape 1, Tape 2: 5 – 130,000 Hz, + 0/– 1.5 dB
Tuner, AUX: 5 – 130,000 Hz, + 0/– 1.5 dB

Phase shift (20 Hz – 20,000 Hz)

Tape 1, Tape 2: + 9.5°/– 2.5°
Tuner, AUX: + 9.5°/– 2.5°

- Specifications are subject to change for further improvement without notice.

Optional Extras

- Black acrylic side walls for freestanding units.
- Attachment sets for installation in 19 inch racks.

TANDBERG®
The European Alternative

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